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IN THE CLAIMS:

Please amend Claims 24, 26, and 27, and add new Claims 29 and 30, as shown below.

1 to 3. (Canceled)

4. (Previously presented) The method according to claim 24, wherein the grid positions corresponding to each dimension are set the same.

5. (Previously presented) The method according to claim 24, wherein the input data is expressed in one of RGB, CMY, and XYZ color spaces.

6. to 23. (Canceled)

24. (Currently amended) A color conversion method of converting three-dimensional input data representing an image by using a three-dimensional look-up table having rectangularly spaced grid points, grid positions of the three-dimensional look-up table having non-uniform intervals, the method comprising the step of performing interpolation processing using four grid points in eight grid points ($P_{000} = P(X_0, Y_0, Z_0)$, $P_{001} = P(X_0, Y_0, Z_1)$, $P_{010} = P(X_0, Y_1, Z_0)$, $P_{011} = P(X_0, Y_1, Z_1)$, $P_{100} = P(X_1, Y_0, Z_0)$, $P_{101} = P(X_1, Y_0, Z_1)$, $P_{110} = P(X_1, Y_1, Z_0)$, $P_{111} = P(X_1, Y_1, Z_1)$) of a unit rectangular hexahedron which includes an input data value (X, Y, Z where $X_0 \leq X \leq X_1$, $Y_0 \leq Y \leq Y_1$, $Z_0 \leq Z \leq Z_1$), wherein the interpolation processing comprises the steps of:

obtaining weight values (u' , v' , w'), based on the input data value (X, Y, Z), wherein the weight values are expressed as follows:

$$u' = \text{INT}(((X-X0)/(X1-X0))L),$$

$$v' = \text{INT}(((Y-Y0)/(Y1-Y0))L),$$

$$w' = \text{INT}(((Z-Z0)/(Z1-Z0))L),$$

where a value of a predetermined constant (L) is greater than each of the grid intervals (X1-X0, Y1-Y0, Z1-Z0) of the three-dimensional look-up table, and is a power of 2;

determining a relationship among the weight values (u' , v' , w');

calculating a value of the output data (P) for the input data value by tetrahedral interpolation using the output values for the four grid points and the weight values, based on determining result by the following equations:

$$\text{when } u' > v' > w', P = ((L-u')P000 + (u'-v')P100 + (v'-w')P110 + w'P111)/L,$$

$$\text{when } u' > w' = v', P = ((L-u')P000 + (u'-w')P100 + (w'-v')P110 + v'P111)/L,$$

$$\text{when } w' = u' > v', P = ((L-w')P000 + (w'-u')P001 + (u'-v')P101 + v'P111)/L,$$

$$\text{when } w' = v' = u', P = ((L-w')P000 + (w'-v')P001 + (v'-u')P011 + u'P111)/L,$$

$$\text{when } v' > w' = u', P = ((L-v')P000 + (v'-w')P010 + (w'-u')P011 + u'P111)/L,$$

$$\text{when } v' = u' > w', P = ((L-v')P000 + (v'-u')P010 + (u'-w')P110 + w'P111)/L; \text{ and}$$

displaying a color converted image represented by outputting the value of the output data to an output device, wherein the output data represents a color converted image.

25. (Previously presented) The method according to claim 24, further

comprising the steps of:

setting grid positions of the three-dimensional look-up table; and

generating X-u', Y-v', and Z-w' tables to obtain the weight values (u', v', w')

in the obtaining step.

26. (Currently amended) A data conversion apparatus for performing color conversion processing on three-dimensional input data representing an image by using a three-dimensional look-up table having rectangularly spaced grid points, grid positions of the three-dimensional look-up table having non-uniform intervals, said apparatus comprising a processor arranged to perform interpolation processing using four grid points in eight grid points ($P_{000} = P(X_0, Y_0, Z_0)$, $P_{001} = P(X_0, Y_0, Z_1)$, $P_{010} = P(X_0, Y_1, Z_0)$, $P_{011} = P(X_0, Y_1, Z_1)$, $P_{100} = P(X_1, Y_0, Z_0)$, $P_{101} = P(X_1, Y_0, Z_1)$, $P_{110} = P(X_1, Y_1, Z_0)$, $P_{111} = P(X_1, Y_1, Z_1)$) of a unit rectangular hexahedron which includes an input data value (X, Y, Z where $X_0 \leq X \leq X_1$, $Y_0 \leq Y \leq Y_1$, $Z_0 \leq Z \leq Z_1$), wherein said processor comprises:

an obtainer, arranged to obtain weight values (u', v', w'), based on the input data value (X, Y, Z), wherein the weight values are expressed as follows:

$$u' = \text{INT}(((X-X_0)/(X_1-X_0))L),$$

$$v' = \text{INT}(((Y-Y_0)/(Y_1-Y_0))L),$$

$$w' = \text{INT}(((Z-Z_0)/(Z_1-Z_0))L),$$

where a value of a predetermined constant (L) is greater than each of the grid intervals (X_1-X_0 , Y_1-Y_0 , Z_1-Z_0) of the three-dimensional look-up table, and is a

power of 2;

a determiner, arranged to determine a relationship among the weight values

(u', v', w');

a calculator, arranged to calculate a value of the output data (P) for the input data value by tetrahedral interpolation using the output values for the four grid points and the weight values, based on determining result by the following equations:

when $u' > v' > w'$, $P = ((L-u')P000 + (u'-v')P100 + (v'-w')P110 + w'P111)/L$,

when $u' > w' = v'$, $P = ((L-u')P000 + (u'-w')P100 + (w'-v')P110 + v'P111)/L$,

when $w' = u' > v'$, $P = ((L-w')P000 + (w'-u')P001 + (u'-v')P101 + v'P111)/L$,

when $w' = v' = u'$, $P = ((L-w')P000 + (w'-v')P001 + (v'-u')P011 + u'P111)/L$,

when $v' > w' = u'$, $P = ((L-v')P000 + (v'-w')P010 + (w'-u')P011 + u'P111)/L$,

when $v' = u' > w'$, $P = ((L-v')P000 + (v'-u')P010 + (u'-w')P110 + w'P111)/L$; and

a display an output unit, arranged to output display a color converted image represented by the output data to an image outputting device.

27. (Currently amended) A computer-readable memory storage medium storing [[a]] computer-executable program instructions causing a computer to perform a color conversion method function of converting three-dimensional input data representing an image by using a three-dimensional look-up table having rectangularly spaced grid points, grid positions of the three-dimensional look-up table having non-uniform intervals, the method comprising the step of color conversion function including performing interpolation processing using four grid points in eight grid points ($P000 = P(X0, Y0, Z0)$,

P001 = P(X0, Y0, Z1), P010 = (X0, Y1, Z0), P011 = P(X0, Y1, Z1), P100 = P(X1, Y0, Z0), P101 = P(X1, Y0, Z1), P110 = P(X1, Y1, Z0), P111 = P(X1, Y1, Z1)) of a unit rectangular hexahedron which includes an input data value (X, Y, Z where X0 ≤ X ≤ X1, Y0 ≤ Y ≤ Y1, Z0 ≤ Z ≤ Z1), wherein the interpolation processing comprises the steps of includes:

obtaining weight values (u', v', w'), based on the input data value (X, Y, Z), wherein the weight values are expressed as follows:

$$u' = \text{INT}(((X-X0)/(X1-X0))L),$$

$$v' = \text{INT}(((Y-Y0)/(Y1-Y0))L),$$

$$w' = \text{INT}(((Z-Z0)/(Z1-Z0))L),$$

where a value of a predetermined constant (L) is greater than each of the grid intervals (X1-X0, Y1-Y0, Z1-Z0) of the three-dimensional look-up table, and is a power of 2;

determining a relationship among the weight values (u', v', w');

calculating a value of the output data (P) for the input data value by tetrahedral interpolation using the output values for the four grid points and the weight values, based on determining result by the following equations:

when $u' > v' > w'$, $P = ((L-u')P000 + (u'-v')P100 + (v'-w')P110 + w'P111)/L$,

when $u' > w' = v'$, $P = ((L-u')P000 + (u'-w')P100 + (w'-v')P110 + v'P111)/L$,

when $w' = u' > v'$, $P = ((L-w')P000 + (w'-u')P001 + (u'-v')P101 + v'P111)/L$,

when $w' = v' = u'$, $P = ((L-w')P000 + (w'-v')P001 + (v'-u')P011 + u'P111)/L$,

when $v' > w' = u'$, $P = ((L-v')P000 + (v'-w')P010 + (w'-u')P011 + u'P111)/L$,

when $v'=u'>w'$, $P=((L-v')P000+(v'-u')P010+(u'-w')P110+w'P111)/L$; and
displaying a color converted image represented by outputting the output data
to an output device, wherein the output data represents a color converted image.

28. (Cancelled)

29. (New) The method according to claim 24, wherein the color converted image is displayed by using a printer.

30. (New) The method according to claim 24, wherein the color converted image is displayed by a monitor.